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File No. (ID#1) ZA 9112361

(ID#2) \_\_\_\_\_

Site Address 228<sup>th</sup> 1/2 SW + 10<sup>th</sup> Ave SW

Date Copied 7/25/01 By Chad

☐ **Title page with the following information:**

- ☐ *Company (Author) name*
- ☐ *Report date*
- ☐ *Project Name*
- ☐ *Company's job number*
- ☐ *Site address*

- ☒ **Executive Summary / Introduction of the report**
- ☐ **Table of contents**
- ☒ **Project Location Map / Vicinity Map**
- ☒ **Site / Exploration Plans, Boring Location Plans**
- ☐ **Cross-sections / Subsurface profiles**
- ☒ **Exploration Logs**
- ☐ **Monitoring Well Logs**
- ☐ **Cone Penetrometer Logs**
- ☐ **Groundwater Elevation Tables / Data**

☐ **Includes data from Previous Reports**

☐ **No new data / data review**

☐ **Missing Data / Illegible Data**  
**Explanation** \_\_\_\_\_

**Comments:** \_\_\_\_\_



ZA9112361



COPY

AGRA Earth &  
Environmental, Inc.  
11335 NE 122nd Way  
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Kirkland, Washington  
U.S.A. 98034-6918  
Tel (206) 820-4669  
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4109

9 February 1996  
11-06560-10

Sundquist Homes, Inc.  
P.O. Box 958  
Lynnwood, Washington 98046-0958

Attention: Mr. Mike Brown, Land Development Manager

Subject: Subsurface Environmental Characterization  
Proposed East Glen Development, Lots 32 through 50  
228th Street SW and 10th Avenue SW  
Snohomish County, Washington

HEARING EXAMINER  
RECEIVED

MAY 22 1996

CASE 9112361  
EXHIBIT 88

Gentlemen:

This letter presents results of AGRA Earth & Environmental, Inc.'s (AEE) Subsurface Environmental Characterization at the above-mentioned site. This phase of work is based upon our previous site work and knowledge of site conditions. Written authorization to begin work was provided by a letter dated 18 July 1994 signed by Homewood Development, Inc. and the previous owners of the property, Krag and Sterling Johnson. This report was originally issued to Krag and Sterling Johnson on 3 October 1994 in "draft" form. Any changes to the originally submitted report are semantic in nature, with the overall content of the report remaining unchanged. This version of the report has been prepared for the exclusive use of Sundquist Homes, Inc. and their agents for specific application to the above-referenced project in accordance with generally accepted environmental practices. In the event that there are any subsequent changes on the existing site, the conclusions contained in this report should be reviewed and modified, if necessary, to reflect those changes.

#### BACKGROUND

In April 1992, AEE (formerly RZA AGRA) performed a subsurface exploration program which included advancing eight backhoe-excavated test pits at the site. Test pits excavated near the wetland area on the northwestern portion of the property disclosed fill soils and demolition debris that extended to a depth of up to 11 feet below the existing ground surface. Demolition debris encountered in the test pits included bricks, tiles, metal debris, asphalt and asphaltic roofing material. Apparent perched groundwater was encountered at a depth of 4 to 6 feet below ground surface at the time of exploration. A soil sample collected from test pit TP-4 exhibited a detectable concentration of tetrachloroethene (PCE). A water sample collected from test pit TP-5 showed detectable concentrations of polycyclic aromatic hydrocarbons (PAHs).

Engineering & Environmental Services

It should be noted that the soil and water sample were collected directly from the test pits for screening purposes only, and therefore, the analytical result may not be representative of actual site conditions.

### **SCOPE AND PURPOSE**

The purpose of this phase of work was to analytically characterize soil samples collected from additional backhoe-excavated test pits in the fill area of the property, and to observe and document thickness, nature, and areal extent of fill materials on this portion of the subject site. Our scope of work for this phase of the project included:

- Visual observation of test pits excavated on the property;
- Collection of discrete soil samples and subsequent analytical screening for possible contaminants; and
- Preparation of this report documenting our findings, along with recommendations for additional site work to determine the nature and extent of contamination, if encountered.

### **SITE CONDITIONS**

#### **Surface Conditions**

The proposed East Glen residential development occupies approximately 23 acres, and is located south of 228th Street and east of 10th Avenue West in Snohomish County, Washington (T27N, R4E, Section 36) (see Location Map, Figure 1). The "subject area" for this phase of work occupies proposed lots 32 through 50, and is located on the northern quarter of the proposed development (see Figure 2). The subject area is generally flat, marked locally by small hummocks. The southern and central portions of the subject area are generally cleared of trees and vegetated with grasses, weeds, scrub, copses of tag alders, and occasional hydrophytes (wetland plants). The northern and perimeter portions of the subject area were densely forested with tag alder, vine maple, scattered fir trees and understory vegetation. The eastern boundary of the subject area is located at the base of a short, steep slope which borders an operating gravel pit. The subject area is bounded to the north by a residential development. A dirt roadway courses the eastern margin of the subject area.

Standing water was observed along the existing roadway on the eastern portion of the site, with smaller, isolated wet areas elsewhere on the site. The south and west margins of the fill area slope steeply down to a wetland area. A small creek enters the wetland area near the southeast corner of the subject area.

#### **Subsurface Conditions**

Twenty-two (22) test pits were excavated in the subject area on 26 July and 1 September 1994. Test pit excavations were performed by Custom Backhoe Services of Bellevue, Washington and K & I Construction of Bothell, Washington under subcontract to AEE. Soils encountered in the excavations were continuously logged by an AEE scientist. Discrete,



**AGRA**

**Earth & Environmental**

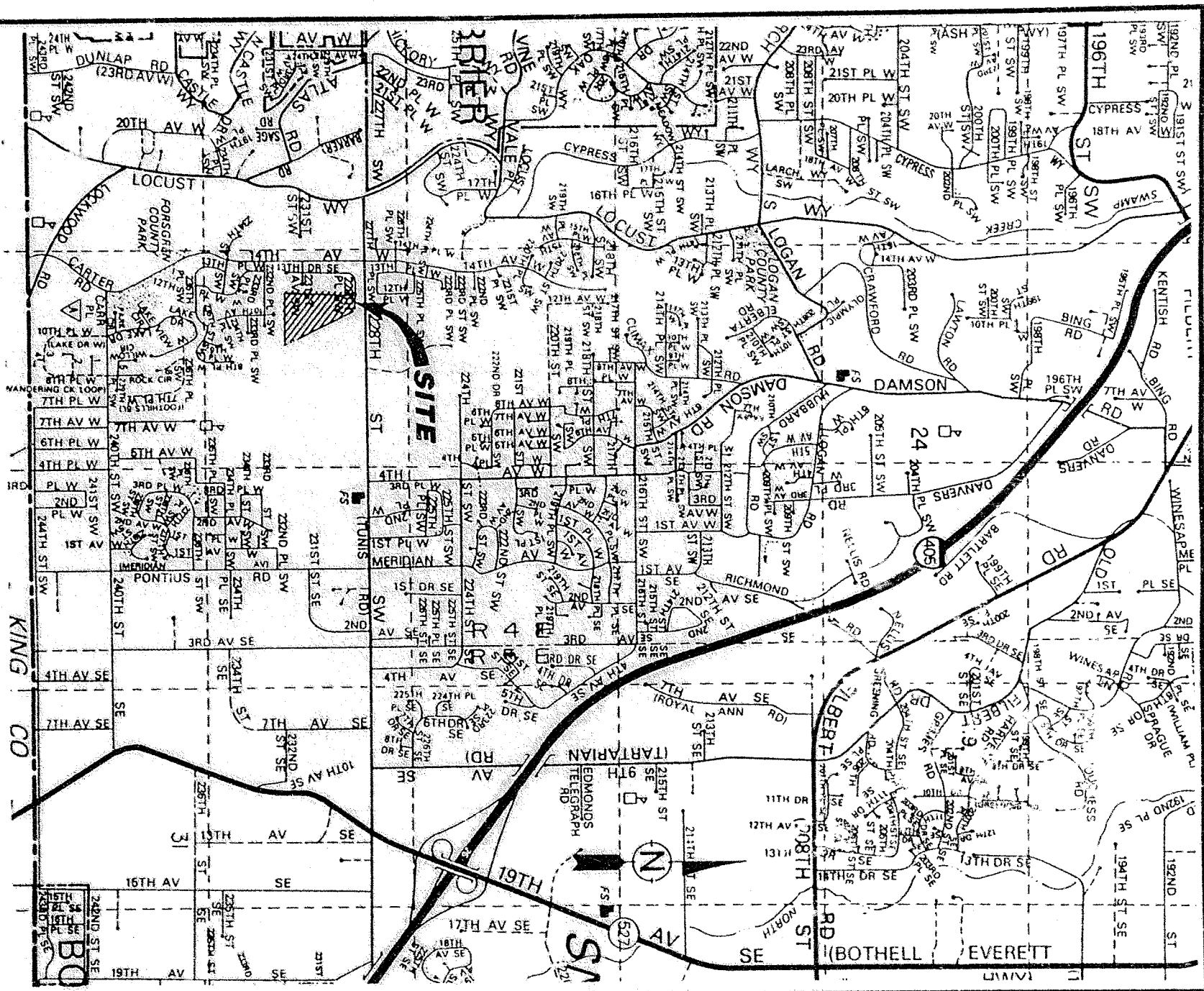
11335 NE 122nd Way, Suite 100  
Kirkland, Washington, U.S.A. 98034-6918

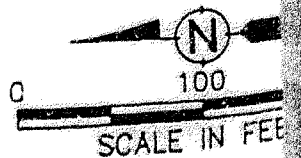
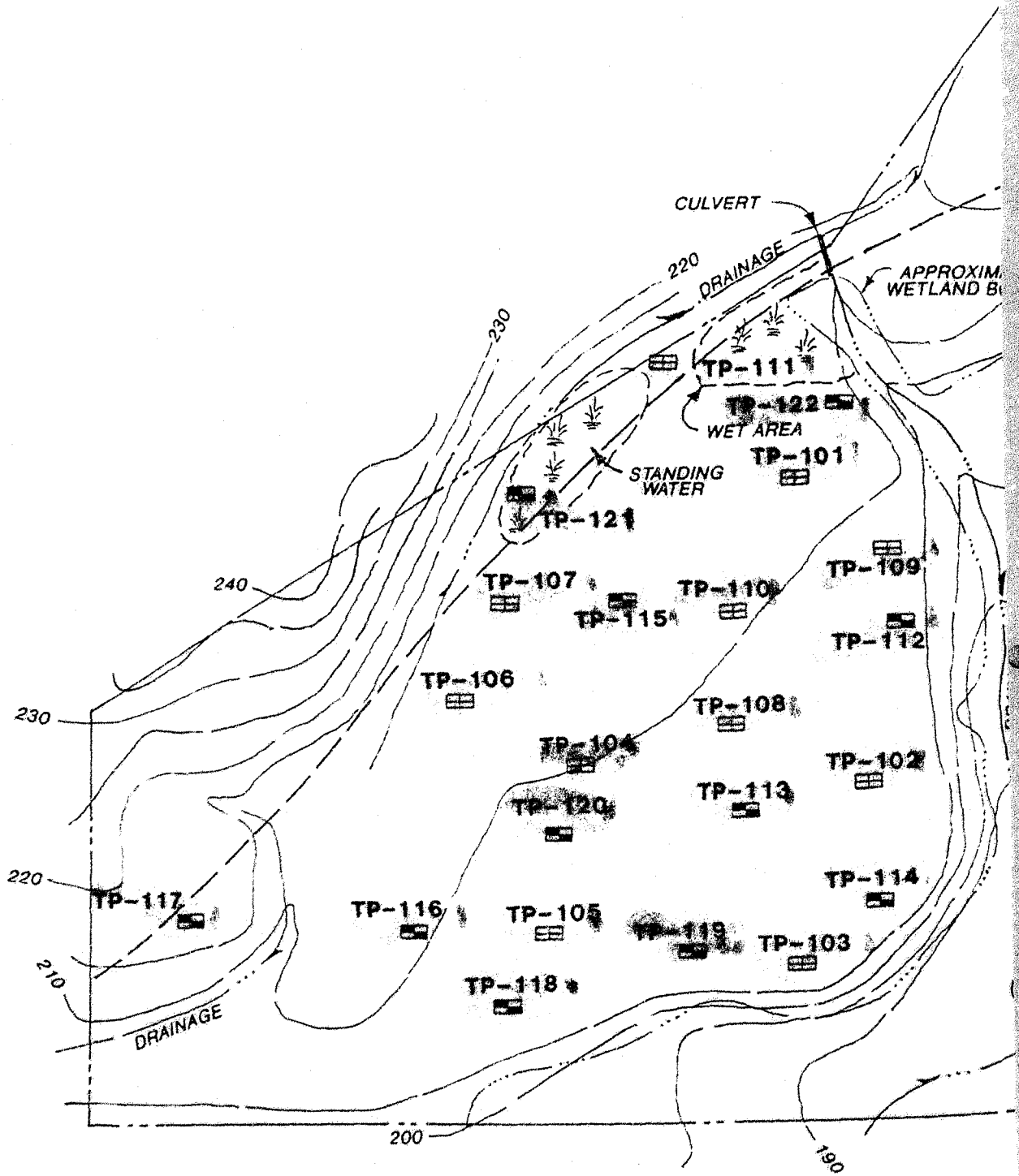
**PROPOSED EAST GLEN DEVELOPMENT  
SNOHOMISH COUNTY, WASHINGTON**

**LOCATION MAP**

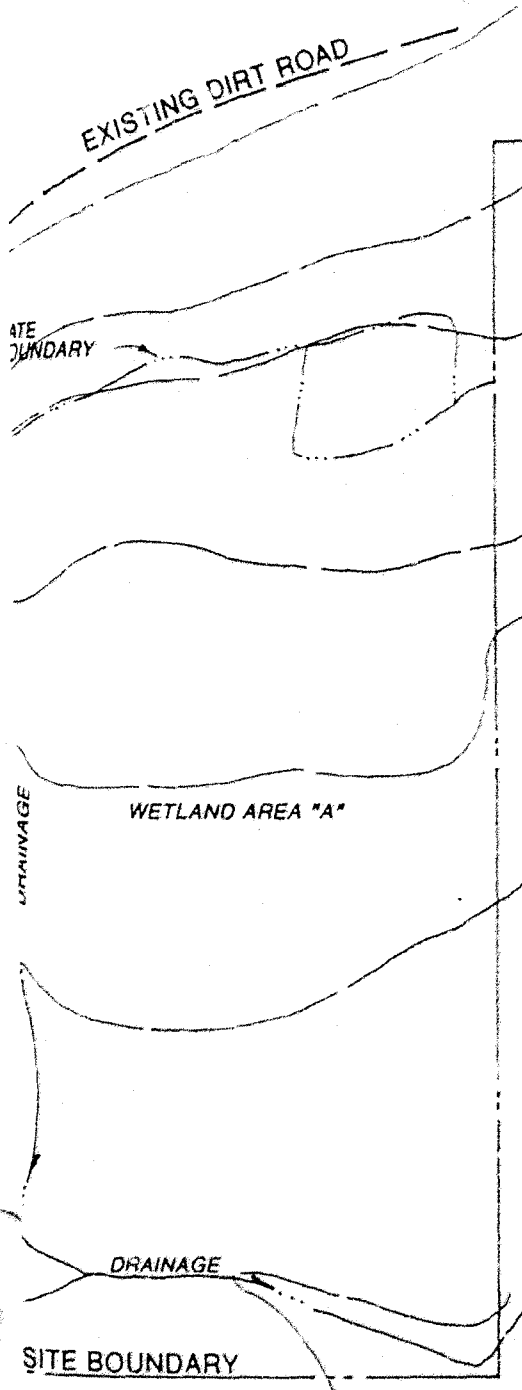
**FIGURE 1**



W.O. 1108560-10  
DESIGN CCC  
DRAWN DMW  
DATE SEP 1994  
SCALE N.T.S.





DRAWING BASED ON PLAN BY ABA INC. DATED 10-15-91.




TP-122  
  
 TP-111  


**LEGEND**  
 TEST PIT NUMBER AND APPROXIMATE LOCATION (1 SEPTEMBER 1994)  
 TEST PIT NUMBER AND APPROXIMATE LOCATION (26 JULY 1994)

 **AGRA**  
**Earth & Environmental**  
 11335 NE 122nd Way, Suite 100  
 Kirkland, Washington, U.S.A. 98034-6918

W.O. 1106560-10  
 DESIGN CCC  
 DRAWN DMW  
 DATE SEP 1994  
 SCALE NOTED

**PROPOSED EAST GLEN DEVELOPMENT**  
**SNOHOMISH COUNTY, WASHINGTON**  
**SITE & EXPLORATION PLAN**  
**FIGURE 2**





200  
  
 .T




## TEST PIT LOGS





<u>Depth (feet)</u>	<u>Soil Classification</u>	11-06560-10
0.0 - 12.0	<div style="background-color: black; width: 150px; height: 20px; margin-bottom: 5px;"></div> Weeds over loose, moist to wet highly variable loose, cobbly, silty, sandy GRAVEL with abundant brick and loose concrete debris, metal rebar and strapping, wood debris and organic debris (fill).	
12.0 - 13.0	Medium stiff, wet, gray-green gravelly, clayey SILT. Test pit terminated at approximately 13.0 feet. No caving observed. Standing water at 4.0 depth.	
0.0 - 7.0	<div style="background-color: black; width: 150px; height: 20px; margin-bottom: 5px;"></div> Weeds over loose, moist, highly variable concrete debris (concrete slabs and curb barriers), some asphalt debris with sandy gravel matrix (fill).	
7.0 - 10.0	Grades to loose/medium dense, silty, gravelly, fine to medium SAND with some asphalt and concrete debris (fill).	
10.0 - 14.5	Grades to black, highly variable, silty, gravelly SAND to sandy GRAVEL with concrete asphalt slabs and debris and broken glass (fill). Test pit terminated at approximately 14.5 feet. No caving observed. No seepage observed.	
0.0 - 10.0	<div style="background-color: black; width: 150px; height: 20px; margin-bottom: 5px;"></div> Weeds over loose, moist, gray, gravelly, silty SAND with large wood and concrete debris, bricks, minor asphalt (fill).	
10.0 - 12.0	Loose, large broken asphalt debris with silty sandy GRAVEL, (fill).	
12.0 - 14.0	Loose, brown, gravelly SAND with large asphalt debris at base (fill). Test pit terminated at approximately 14.0 feet. No caving observed. No seepage observed.	
0.0 - 1.5	<div style="background-color: black; width: 150px; height: 20px; margin-bottom: 5px;"></div> Weeds over loose, brown, gravelly SAND with wood and concrete debris (fill).	
1.5 - 2.5	Grades to soft, mottled gray, gravelly sandy SILT with clay (fill).	

<u>Depth (feet)</u>	<u>Soil Classification</u>
2.5 - 9.0	Loose, wood, asphalt and concrete debris within a matrix of moist to wet, black, sandy, gravelly SILT (fill). Refusal at 9.0 foot depth on asphalt or concrete slab. Test pit terminated at approximately 9.0 feet. No caving observed. Fast seepage at 7.5 feet.
0.0 - 3.0	Weeds over medium dense, gray/brown, cobbly, silty, sandy GRAVEL with concrete debris (fill).
3.0 - 5.5	Very stiff, moist, gray, clayey SILT.
5.5 - 8.5	Grades to moist to wet, gray, silty, gravelly SAND/sandy SILT.
8.5 - 9.5	Soft, wet, brown PEAT.
9.5 - 12.0	Medium dense, tan, gravelly, medium SAND, some silt. Test pit terminated at approximately 12.0 feet. No caving observed. Seepage at 7.0 feet.
0.0 - 2.0	Weeds over loose, moist gray, gravelly SAND with concrete and asphalt debris (fill).
2.0 - 4.0	Loose, moist brown, gravelly SAND with minor wood debris (fill).
4.0 - 8.5	Loose, black, sandy GRAVEL with greater than 80% disaggregated asphalt with cobble-sized and larger asphalt fragments (fill).
8.5 - 11.0	Medium dense, moist, tan and gray, gravelly, medium SAND. Test pit terminated at approximately 11.0 feet. No caving observed. Seepage into pit near ground surface.
0.0 - 2.0	Weeds over loose, moist, gray to brown, gravelly SAND with wood, asphalt and concrete debris (fill).
2.0 - 8.5	Loose, moist, black, sandy GRAVEL, dominantly disaggregated asphalt with variable sized asphalt debris (fill).
8.5 - 11.0	Medium dense, wet tan to gray mottled with oxidation, gravelly, silty, medium SAND. Test pit terminated at approximately 11.0 feet. No caving observed. Rapid seepage at 8.5 feet.



<u>Depth (feet)</u>	<u>Soil Classification</u>
	
0.0 - 2.5	Weeds over loose, moist, gray, sandy, silty GRAVEL with concrete debris (fill).
2.5 - 6.0	Stiff, moist, gravelly, sandy SILT with bricks, wood, concrete and minor asphaltic debris (fill).
6.0 - 10.0	Medium dense, moist to saturated, gray mottled with black and brown, highly variable silty, gravelly SAND to sandy GRAVEL with abundant large wood and concrete debris (fill).
10.0 - 12.0	Stiff, moist to wet, gray/green stained, sandy SILT with organic debris. Test pit terminated at approximately 12.0 feet. No caving observed. Rapid seepage at 7.5 to 8.0 feet.
	
0.0 - 6.0	Weeds over loose, moist gray to brown, gravelly SAND with large concrete slabs; varies to wet, gray, silty, gravelly SAND (fill).
6.0 - 8.0	Loose wet, highly variable, gray silty gravelly SAND.
8.0 - 10.0	Loose, saturated brown, cobbly, sandy GRAVEL with large concrete and asphalt debris (fill). Test pit terminated at approximately 10.0 feet No caving observed. Moderate seepage at 4.0 feet.
	
0.0 - 2.5	Weeds over loose, moist brown, highly variable gravelly SAND to sandy GRAVEL with large concrete debris and bricks (fill).
2.5 - 7.0	Stiff/loose, moist gray to black, gravelly, sandy SILT to sandy, silty GRAVEL (fill).
7.0 - 11.0	Loose, moist, gravelly, silty, fine to coarse SAND with wood fragments and concrete debris (fill). Test pit terminated at approximately 11.0 feet. No caving observed. No seepage observed.
	
0.0 - 4.0	Weeds over loose to medium dense, moist to wet, dark gray, sandy GRAVEL with concrete debris (fill).
4.0 - 6.0	Medium dense, moist to wet, gray, gravelly SAND.

<u>Depth (feet)</u>	<u>Soil Classification</u>
6.0 - 8.0	Medium dense, moist to wet, tan with oxidation, variable silty, gravelly SAND. Test pit terminated at approximately 8.0 feet. No caving observed. No seepage observed.
	
0.0 - 4.5	Weeds over medium dense, tan, moist, silty fine to medium SAND with gravel, wood, concrete and asphalt fragments (fill).
4.5 - 9.0	Loose, moist brown, silty fine SAND, lots of wood debris, sticks, roots and occasional layers of tar, and brick (fill).
9.0 - 13.0	Loose, wet brown and gray, silty SAND.
13.0 - 16.0	Soft, wet red-brown, fibrous PEAT.
16.0 - 17.0	Soft, wet blue-gray, clayey SILT with organic matter.
17.0 - 18.0	Dense, wet tan, mottled orange, silty fine SAND to sandy SILT. Test pit terminated at approximately 18.0 feet. Moderate caving of sidewalls at 4.0 to 9.0 feet. Light to moderate seepage at 13.0 to 16.0 feet.
	
0.0 - 3.0	Weeds over medium dense, moist gray brown, silty SAND with gravel and concrete debris (fill).
3.0 - 10.0	Loose, wet brown, silty SAND with some gravel, with abundant wood fragments, lumber scrap, piping, some concrete; obstruction at 9.0 feet (fill).
10.0 - 18.0	Loose, wet gray, silty fine SAND with clay (fill).
18.0 - 19.0	Soft, wet brown, woody Topsoil.
19.0 - 20.0	Loose to medium dense, wet gray, sandy SILT to SAND with silt and pebbles. <i>Test pit terminated at approximately 20.0 feet.</i> Extensive caving of sidewalls. Light to moderate seepage below 9.0 feet.
	
0.0 - 2.5	Weeds over loose, moist tan, silty SAND with gravels, concrete and brick fragments (fill).
2.5 - 5.0	Buried pile of end dumped asphalt (fill).
5.0 - 16.0	Loose to medium dense, moist brown, silty SAND, with abundant scrap lumber (fill).
16.0 - 16.5	Loose, wet, brown-black, silty, sandy GRAVEL.

<u>Depth (feet)</u>	<u>Soil Classification</u>
	Test pit terminated at approximately 16.5 feet. No caving observed. Moderate seepage at 16.0 feet.
	
0.0 - 2.0	Weeds over dense, dry to damp gray, very silty, fine SAND with gravel (fill).
2.0 - 8.0	Loose, moist, brown and gray, silty fine SAND with gravel, some organic debris and concrete fragments (fill).
8.0 - 10.0	Loose, wet gray SAND with gravel and silt, and abundant concrete fragments (fill). Test pit terminated at approximately 10.0 feet. Heavy seepage and caving of sidewalls at 8.0 feet.
	
0.0 - 3.0	Weeds over dense, damp tan, silty fine SAND with gravel (fill).
3.0 - 6.5	Medium stiff gray SILT, moist, with abundant brown organic debris (fill).
6.5 - 7.0	Medium dense to loose, wet brown, woody topsoil.
7.0 - 9.0	Loose, moist to wet red-tan, very silty fine SAND with gravel.
9.0 - 13.0	Medium dense, wet tan-gray SAND with gravel and silt. Test pit terminated at approximately 13.0 feet. Minor caving below 7.0 feet. Minor seepage below about 8.0 feet.
	
0.0 - 3.0	Weeds over loose to medium, dry to damp, light brown, silty SAND (fill).
3.0 - 7.5	Medium dense, moist red tan, silty fine to medium SAND, some coarse rounded gravel.
7.5 - 9.0	Medium dense, wet tan, mottled orange, SAND with gravel and silt. Test pit terminated at approximately 8.0 feet. No caving observed. No seepage observed.
	
0.0 - 3.0	Weeds over loose, grey silty fine SAND with asphalt and concrete debris (fill).
3.0 - 11.0	Mixed brown and gray, silty SAND with gravel, wood fragments, concrete, root balls, boulders, and bricks (fill).
11.0 - 12.0	Loose, wet dark brown topsoil-like SAND with roots, sticks, and woody debris (fill).
12.0 - 15.0	Medium dense, wet gray brown, slightly silty SAND with gravel.

Depth (feet)      Soil Classification

Test pit terminated at approximately 15.0 feet.  
Moderate caving below 12.0 feet. No seepage observed.

[REDACTED]

0.0 - 8.0      Weeds over loose, dry, mixed black SILT, white gypsum board and tan silty SAND with abundant concrete and brick fragments, scrap metal, rebar (fill).

8.0 - 14.0      Loose, wet blue-gray, very silty SAND with clay and gravel.

14.0 - 16.5      Loose, wet dark gray, silty, gravelly SAND with organics.

16.5 - 17.0      Soft, wet dark brown, organic SILT.

17.0 - 17.5      Dense, wet gray, mottled orange, SAND with silt to silty SAND.

Test pit terminated at approximately 17.5 feet.  
No seepage observed. Moderate caving below 7.0 feet.

[REDACTED]

0.0 - 1.0      Weeds over dense, moist brown, silty SAND with gravel (fill).

1.0 - 3.5      Blue-black, silty SAND with gravel, moist, dense. Abundant aluminum cans, concrete fragments and bricks (fill).

3.5 - 7.5      Loose, wet dark brown, organic, silty SAND.

7.5 - 10.0      Loose, wet dark brown, sticks, root balls, straw mats grading to topsoil.

10.0 - 11.0      Medium dense, wet dark brown, organic, gravelly silty SAND with roots.

Test pit terminated at approximately 11.0 feet.  
Moderate caving below 7.5 to 8.0 feet. Heavy seepage at 7.5 to 8.0 feet.

[REDACTED]

0.0 - 2.0      Gray, dense, moist to wet, brown gravel. Test pit terminated at approximately 2.0 feet due to surface water inundation. No samples obtained.

<u>Depth (feet)</u>	<u>Soil Classification</u>
0.0 - 2.5	Dense, dry to damp, tan, very silty fine SAND with gravel and concrete debris (fill).
2.5 - 10.0	Loose, saturated gray, silty SAND with gravel, saturated. Heavy seepage at 4.0 to 5.0 feet. Test pit terminated at approximately 10.0 feet. Some caving observed. Some seepage observed.

Date excavated: TP-101 to TP-111 (23 July 1994)  
TP-112 to TP-122 (1 September 1994)

Logged by: CCC/DG